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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/915,188	07/25/2001	John C. Dute	A-70825/RMA	5259
1678	7590	08/08/2005	EXAMINER	
MARSHALL & MELHORN FOUR SEAGATE, EIGHT FLOOR TOLEDO, OH 43604			PEREZ DAPLE, AARON C	
			ART UNIT	PAPER NUMBER
			2154	
DATE MAILED: 08/08/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/915,188

Applicant(s)

DUTE ET AL.

Examiner

Aaron C. Perez-Daple

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 May 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 86-90 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 86-90 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 7/25/01 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This Action is in response to Amendment filed 5/9/05, which has been fully considered.
2. Claims 1-85 have been cancelled by Applicant.
3. New claims 86-90 are presented for examination.
4. This Action is FINAL.

Drawings

5. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the embodiment of claim 86, which has two physical circuit packages and a single controller, must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not

accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

6. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: the specification does not appear to disclose the embodiment of claim 86, which has two physical circuit packages and a single controller. These features must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Claim Rejections - 35 USC § 112

7. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

8. **Claims 86-90** are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Specifically, claim 86 recites two physical circuit packages in simultaneous communication with a single controller. The Examiner can find no reference to this embodiment in the disclosure as originally filed. Applicant has cited page 3, lines 4-12,

in support of “simultaneously” receiving a condition from a sensor and sending commands to an actuator. However, this passage refers to the sensing of inputs and outputs by a single physical circuit package of the invention and makes no reference to the controller.

Furthermore, the disclosure does not indicate that the controller itself receives conditions from the sensor and sends commands to the actuator. Rather, this function is disclosed as performed by the physical circuit package. The controller is disclosed only as receiving status data from and sending command data to the physical circuit package (see pg. 6, lines 25-28). Even if the point controller can be construed as performing these functions, the point controller is claimed as being part of the physical circuit package and not part of the recited “controller.” See claim 87. Therefore, the disclosure also fails to provide proper support for a controller which is capable of receiving condition data from a sensor and sending commands to an actuator, irrespective of whether these sending/receiving functions are performed “simultaneously.”

Moreover, the passage cited page 3, lines 4-12, of the specification is in direct contradiction to the limitation that each physical circuit package is “electrically connected directly, exclusively, and physically to a single sensor or a single actuator, but not both simultaneously.” That is, the passage clearly implies that each physical circuit package is in fact capable of being connected to at least one sensor (input) and one actuator (output) simultaneously. Fig. 1 illustrates just such an embodiment. The disclosure makes no mention of a circuit which is limited to exclusively being connected to only one of a sensor or an actuator. Therefore, the disclosure also fails to provide proper support for this limitation of the claims.

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9. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

10. **Claims 86-90** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for

failing to particularly point out and distinctly claim the subject matter which applicant

regards as the invention. Claim 86 recites that each controller is capable of

“simultaneously” receiving a condition from a sensor and sending commands to an actuator.

The term “simultaneously” is a relative term which renders the claim indefinite. The term

“simultaneously” is not defined by the claim, the specification does not provide a standard

for ascertaining the requisite degree, and one of ordinary skill in the art would not be

reasonably apprised of the scope of the invention. In Remarks filed 5/9/05, Applicant

attempts to make a distinction between the sequential processing of the prior art and the

claimed simultaneous processing. However, it is not clear that such a distinction is in fact

proper, and the distinction does not appear to be supported by the original disclosure.

Specifically, pg. 14, lines 25-27 recite:

For each of the output modes corresponding input modes can be used simultaneously, specifically Mode 1 with Mode 2, Mode 4 with Mode 5 and Mode 6 with Mode 7. Within appropriate signal ranges different modes can be dynamically invoked *sequentially* (emphasis added).

This passage clearly suggests that the term “simultaneously” actually includes sequential operation of the modes. The Examiner notes that, as understood by one of ordinary skill in the art, sequential processing refers to the ability of a single processor to handle more than one task “simultaneously” by stepping through the different tasks in sequence. Parallel processing is another manner for handling multiple tasks simultaneously by handling each task on a separate processor. However, the disclosure makes no mention of parallel

processing and, indeed, discloses only a single processor in the controller. Therefore, the Examiner interprets that the term “simultaneously” includes sequential processing.

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. **Claims 86-90** are rejected under 35 U.S.C. 103(a) as being unpatentable over McLeish et al. (US 5,014,238) (hereinafter McLeish) in view of Sitte (US 5,469,150).

13. As for claim 86, McLeish discloses a new comprehensive interface circuit for simultaneously sensing input and output devices, comprising:

a first physical circuit package (input-output device 2, Fig. 2) having a first electrical terminal, a second electrical terminal and a plurality of mode circuits disposed thereon, wherein said plurality of mode circuits can accomplish digital input, digital output, analog input, and analog output, and said first electrical terminal and said second electrical terminal being capable of electronic communication with each of said plurality of mode circuits (col. 4, lines 30-58; col. 5, lines 25-28);

a second physical circuit package (input-output device 2, Fig. 2) having a first electrical terminal, a second electrical terminal and a plurality of mode circuits disposed thereon, wherein said plurality of mode circuits can accomplish digital input, digital output, analog input, and analog output, and said first electrical terminal and said second electrical terminal

being capable of electronic communication with each of said plurality of mode circuits (col. 4, lines 30-58; col. 5, lines 25-28); and

a controller (MP 3, Fig. 2) that is external to said first physical circuit package and said second physical circuit package, said controller capable of simultaneously receiving a condition from each sensor and being capable of simultaneously sending commands to each actuator (col. 3, line 52 – col. 4, line 3).

McLeish discloses four terminals for each channel (col. 4, lines 30-34). Nothing in McLeish requires that all four terminals be used for each connected device. Nonetheless, McLeish does not *specifically* disclose that the physical circuit packages are electrically connected directly, exclusively, and physically to single sensor or single actuator, but not both simultaneously, via only first and second terminals. Sitte teaches a sensor having two terminals (col. 1, lines 39-54, “U.S. Pat No....over a wide range.”). Such a sensor would inherently be coupled to a control circuit through only two terminals (e.g. first and second terminals). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify McLeish by electrically connecting the physical circuit packages directly, exclusively, and physically to single sensor or single actuator, but not both simultaneously, via only first and second terminals, because this would allow for coupling with a two-terminal sensor such as that disclosed by Sitte.

14. As for claim 87, McLeish discloses the comprehensive interface circuit of claim 86, wherein each physical circuit package further has a point controller disposed thereon (central processing unit 6, Fig. 1).

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15. As for claim 88, McLeish discloses the comprehensive interface circuit of claim 86, further comprising an electrical bridge (address bus 7, Fig. 1).
16. As for claim 89, McLeish discloses the comprehensive interface circuit of claim 86, further comprising a monoline serial interface (data bus 11, Fig. 1).
17. As for claim 90, McLeish discloses the comprehensive interface circuit of claim 86, wherein said first physical circuit package is electrically connected to a single sensor and said second physical circuit package is electrically connected to a single actuator (This embodiment clearly falls within the scope of McLeish's teachings, since McLeish teaches that any number of sensors or actuators may be attached to each input-output device. See col. 4, lines 23-29)

Response to Arguments

18. Applicant's arguments filed 5/9/05 have been fully considered but they are not persuasive. In particular, the new claims filed 5/9/05 have significantly altered the scope of the claimed invention and do not appear to be enabled by the disclosure as originally filed. Applicant's arguments with respect to the limitation of "simultaneously" receiving condition data from a sensor and sending command data to an actuator are addressed in the new 112, first and second paragraph, rejections above. Arguments with respect to connecting directly, exclusively, and physically to only first and second terminals are also addressed in both the 112, first paragraph, and 103 rejections above. Specifically, even if support can be found for this limitation in the disclosure, the Examiner maintains that this is an obvious modification

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of the McLeish reference, based on the fact that two terminal sensors and actuators are well-known in the art and have many practical applications.

Conclusion

19. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

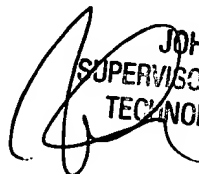
20. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Aaron C. Perez-Daple whose telephone number is (571) 272-3974. The examiner can normally be reached on 9am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Follansbee can be reached on (571) 272-3964. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

 7/27/05
Aaron Perez-Daple

 JOHN FOLLANSBEE
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